

FIG. 1

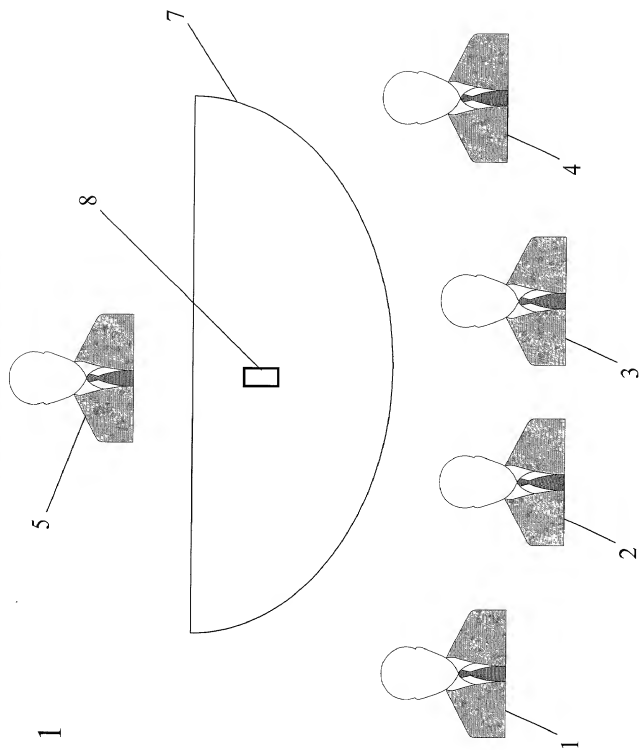


FIG. 2

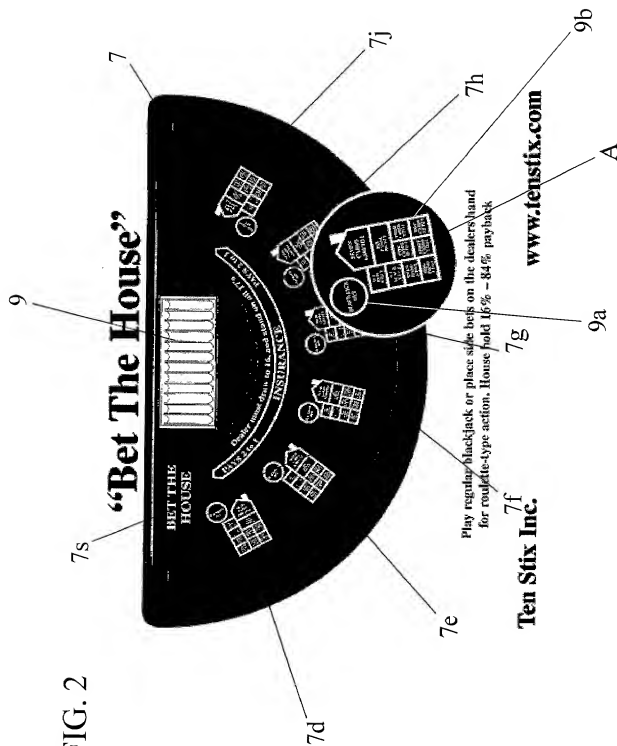


FIG. 3

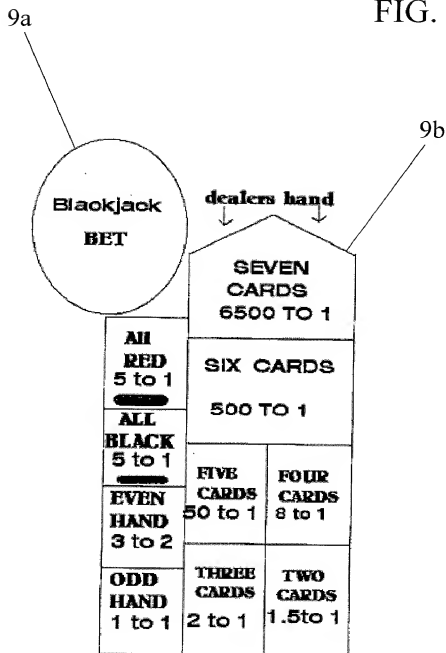
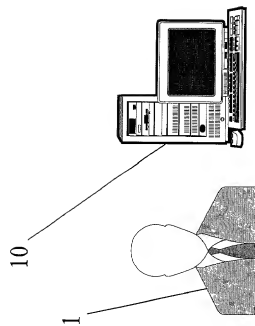
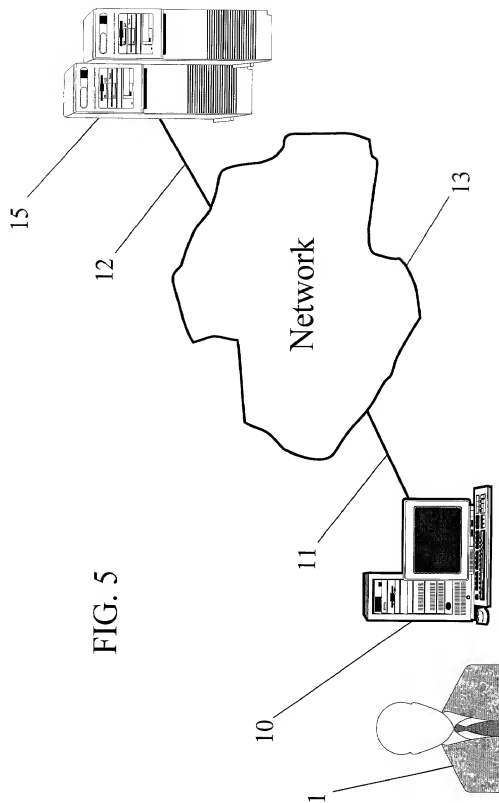
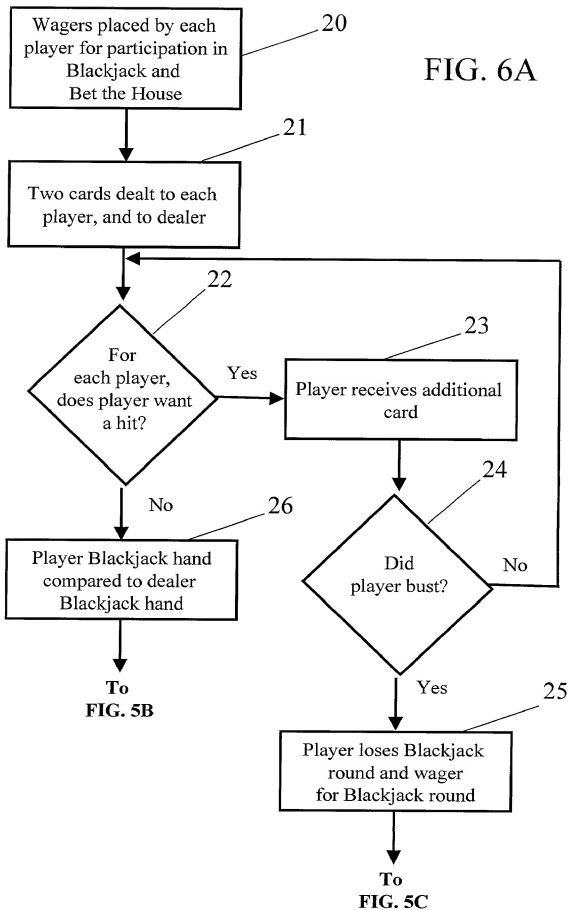


FIG. 4

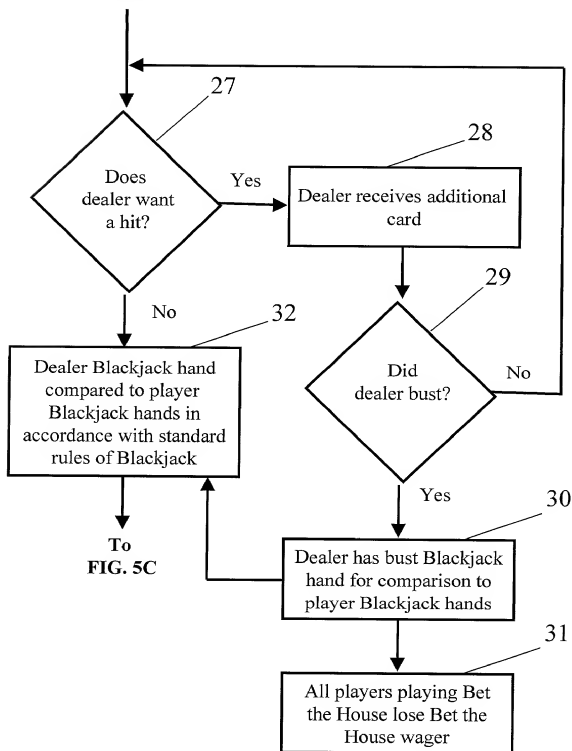






From  
FIG. 5A

FIG. 6B



From  
FIGs. 5A, 5B

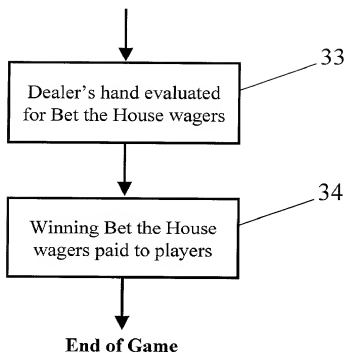


FIG. 6C

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# FIG. 7A

The probability of a dealer having non-busting hands of 3 through 8 cards is as follows:

Cards	PO	Odds	Payout	Return %
3	.266	2.76:1	2 to 1	80%
4	.0860	10.6:1	8 to 1	78%
5	.0152	64.7:1	50 to 1	76%
6	.00172	582:1	500 to 1	86%
7	.000129	7750:1	6500 to 1	84%
8	.000055	153910:1	125,000 to 1	82%

The odds of the dealer having a non-busting hand with an odd or even total:

$P(\text{odd}) = .399$ , odds are 1.508:1

With a payout of 1 to 1 the % of return will be 80%.

$P(\text{even}) = .320$ , odds are 2.127:1

With a payout of 1.5 to 1 the % of return will be 80%.

The odds of the dealer getting a non-busting hand with all red or all black cards:

In an infinite deck, the chances of an all red ( or all black ) 2 card hand are 1/4. That happens 34.9% of the time. In three cards, 1/8 or 26.6% of the time. In four cards, 1/16 or 8.6% of the time. In five cards 1/32 or 1.5% of the time. In six cards 1/64 or .17% of the time etc. This adds up to 12.6% as the probability that you could get an all red or an all black hand.

$P(\text{all red})$  or  $P(\text{all black}) = .253$ . For any finite number of decks, the probability would be somewhat lower. With a 5 to 1 payout the return % is 77%

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## FIG. 7B

### Frequency Of Pat Hands

There are 13 ranks of cards (ace through king). In an infinite number of decks, there would be thirteen possible first cards and thirteen possible second cards. A simple grid would establish that of the resulting 169 two-card combinations, 59 will have total values of seventeen through twenty-one (a pat hand). Where a dealer must hit a soft seventeen, the A-6 and 6-A combinations reduce the fraction to 57 of 169 possibilities.

Where there are a limited number of decks, the effort of removal (a card cannot be matched up with itself) reduces the instance of pat hand totals and also reduces the number of possible two-card combinations. Thus, with one deck, there are  $(52 \times 51)$  or 2,652 possible two-card hands, of which 920 are pat. With two decks, of the 10,712  $(104 \times 103)$  possible first two cards, 3,728 will be pat hands. Six decks yields 97,032 possible two-card combinations, of which 33,840 are pat hands. Eight decks yields 172,640 combinations of which 60,224 are pat hands. Thus incidences of pat hands are:

No. of decks	frequency	occurrence
1	.3469	920 out of 2,652 or 1 out of 2.826 hands
2	.3480	3,728 out of 10,712 or 1 out of 2.8734 hands
6	.3488	33,840 out of 97,032 or 1 out of 2.8674 hands
8	.3488	60,224 out of 172,640 or 1 out of 2.8667 hands
infinite	.3491	59 out of 169 or 1 out of 2.8644 hands

As a check, if you add the probabilities for pat hands, you get .718, which implies a probability of dealer bust of 28.2%. With a payout of 1.5 to 1 the return % will be 88%.